

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

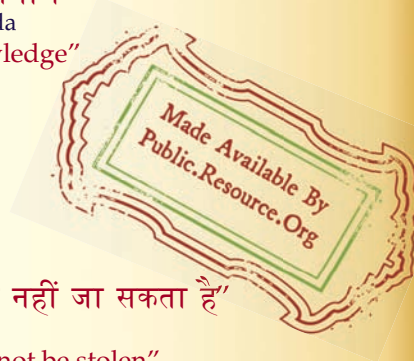
IS 4910-6 (1989): Tyre yarns, cords and tyre cord warpsheets made from man-made fibres - Method of test, Part 6: Wet contraction and wet contractile force [TXD 1: Physical Methods of Tests]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard

**TYRE YARNS, CORDS AND TYRE CORD
WARPSHEETS MADE FROM MAN-MADE
FIBRES — METHODS OF TEST**

PART 6. WET CONTRACTION AND WET CONTRACTILE FORCE

(First Revision)

भारतीय मानक

कृत्रिम रेशों से निर्मित टायर सूत, डोरी और टायर डोरी ताना-चद्वरों
की परीक्षण पद्धतियाँ

भाग 6 आर्द्र आकुंचन और आर्द्र आकुंचनीय बल

(पहला पुनरीक्षण)

UDC 677·072·6 : 629·11·012·553·1 : 677·017·635·2

© BIS 1989

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

This Indian Standard (Part 6) (First Revision) was adopted by the Bureau of Indian Standards on 7 June 1989, after the draft finalized by the Physical Methods of Test Sectional Committee had been approved by the Textile Division Council.

This standard which was first published in 1969 (as Part V) has been revised to incorporate changes on the basis of experience gained during its use.

In the preparation of this standard, due weightage has been given to the testing practices followed in this field in the country. Assistance has been derived from ASTM Designation : D 885 - 1981 'Standard methods of testing industrial filament yarns, tyre cords, and the tyre cord fabrics made from man-made organic-base fibres', issued by the American Society for Testing and Materials, U. S. A.

This standard (Part 6) forms a part of the series of standards under the title 'Methods of test for tyre yarns, cords and tyre cord warpsheets made from man-made fibres'. The other parts under the series are:

- IS 4910 (Part 1) : 1989 Definition of terms
- IS 4910 (Part 2) : 1989 Linear density
- IS 4910 (Part 3) : 1989 Load and elongation characteristics
- IS 4910 (Part 4) : 1989 Dip pick-up
- IS 4910 (Part 5) : 1989 Head shrinkage and heat shrinkage force
- IS 4910 (Part 7) : 1989 Heat degradation
- IS 4910 (Part 8) : 1989 Thickness
- IS 4910 (Part 9) : 1978 Sampling for tyre yarns, cords and tyre fabrics made from rayon
- IS 4910 (Part 10) : 1989 Creep
- IS 4910 (Part 11) : 1989 Commercial mass
- IS 4910 (Part 12) : 1989 Sampling for tyre yarns, cords and tyre cord fabrics made from polyamide
- IS 4910 (Part 13) : 1989 Static adhesion of textile tyre cord to vulcanized rubber

In reporting the result of a test made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'.

Indian Standard

TYRE YARNS, CORDS AND TYRE CORD WARPSHEETS MADE FROM MAN-MADE FIBRES — METHODS OF TEST

PART 6 WET CONTRACTION AND WET CONTRACTILE FORCE

(First Revision)

1 SCOPE

1.1 This standard (Part 6) prescribes method for determination of wet contraction and wet contractile force developed in rayon and nylon (polyamide) tyre yarns and cords when immersed in water at $27 \pm 2^\circ\text{C}$ under a standard pretension of 4.4 ± 0.9 mN/tex.

2 SAMPLING

2.1 Samples from the lot shall be drawn so as to be representative of the lot. Sample drawn in accordance with the procedure laid down in the relevant material specification or as agreed to between the buyer and the seller shall be held to be representative of the lot.

3 CONDITIONING OF TEST SAMPLES

3.1 Unless otherwise agreed to between the buyer and the seller, the test sample shall be conditioned to a state of moisture equilibrium from the dry side under standard atmosphere at 65 ± 2 percent relative humidity and $27 \pm 2^\circ\text{C}$ temperature. A standard temperature of $20 \pm 2^\circ\text{C}$ may also be used provided it is declared in the test report.

NOTE — When the test sample under zero tension has been left in such a way as to expose, as far as possible, all portions of it to the standard atmosphere for 24 hours, the test sample shall be deemed to have reached a state of moisture equilibrium.

4 APPARATUS

4.1 Mounting Device

The device shall be such that a specimen of at least 250 mm length can be mounted on it with one of its ends in a fixed clamp under desired dead-weight tension and immersed in water at $27 \pm 2^\circ\text{C}$. It shall be provided with means for:

- measuring initial and final lengths of test specimen to an accuracy of 1 mm during immersion, in case of wet contraction test; and
- attaching one clamp to a strain gauge or a mechanical device capable of indicating tension to an accuracy of 1 g without any significant change in the length of the specimen, in the case of wet contractile force test.

5 PROCEDURE

5.1 Mount the conditioned test specimen on the mounting device under a standard pretension of 4.4 ± 0.9 mN/tex. Note the original length of test specimen for wet contraction test and initial tension in case of wet contractile force test.

NOTE — In case of tyre cord warpsheets, the cords shall be removed from the warpsheets for testing.

5.2 Immerse the test specimen mounted as above in water at $27 \pm 2^\circ\text{C}$ temperature and keep it in this position for 5 minutes. Note the final length or force, as the case may be, while the specimen is still under water.

5.3 Take at least 5 readings.

6 CALCULATIONS

6.1 Calculate the wet contraction and wet contractile force as follows:

$$\text{a) Wet contraction, percent} = \frac{a - b}{a} \times 100$$

where

a = original length of the specimen, and

b = final length of the specimen,

$$\text{b) Wet contractile force, mN/tex} = \frac{f_1 - f_2}{t}$$

where

f_1 = final tension, in mN, developed in the specimen;

f_2 = initial tension, in mN, in the specimen; and

t = linear density of the yarn or cord in tex.

7 REPORT

7.1 The report shall include the following information:

- Type of material,
- Wet contraction and wet contractile force,
- Number of tests, and
- Temperature used for conditioning the test specimens, that is, $27 \pm 2^\circ\text{C}$ or $20 \pm 2^\circ\text{C}$.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference:

Doc : No. TDC 1 (2423)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

Telephone

{ 331 01 31
331 13 75

Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola
CALCUTTA 700054

36 24 99

Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036

{ 2 18 43
3 16 41

Southern : C. I. T. Campus, IV Cross Road, MADRAS 600113

{ 41 24 42
41 25 19
41 29 16

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
BOMBAY 400093

6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.
GUWAHATI. HYDERABAD. JAIPUR. KANPUR. PATNA.
TRIVANDRUM.